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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/450,514	11/30/1999	KOICHI SATO	P18408	7714

7055 7590 07/14/2006

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EXAMINER	
HANNETT, JAMES M	
ART UNIT	**PAPER NUMBER**
2622	

DATE MAILED: 07/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/450,514	SATO, KOICHI
	Examiner	**Art Unit**
	James M. Hannett	2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 April 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 November 1999* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 4/26/2006 have been fully considered but they are not persuasive.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Miyamoto teaches a thinning method which thins out image data according to the pattern depicted in figure. However, Miyamoto does not teach thinning the image data in a uniform manner by thinning out every third column and third line of image data.

Kondo teaches that it is advantageous when performing a thinning operation to thin out every third column and line because doing so enables the image data to be thinned without deteriorating the coding efficiency.

The applicant has challenged the official notice statement by the examiner that it was well known in the art at the time the invention was made to thin out image data according to a required output resolution for a monitor. The examiner has provided a reference for the applicant and has included it in the rejection of the claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1: Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,593,965 Miyamoto in view of USPN 5,912,708 Kondo et al in further view of USPN 5,734,427 Hayashi.

2: In regards to Claim 10, Miyamoto teaches an image reading device in which pixel data of a first image, formed on an imaging device having an on-chip color filter of a plurality of colors, are point-sequentially read from the imaging device (Column 2, Lines 11-17). And subjected to an interpolation process (Column 4, Lines 12-20) to generate components of the plurality of colors for each of the pixel data to obtain a second image, the image reading device comprising:

A thinning processor (Figure 3 and Column 3, Lines 57-60) that thins out some of the pixel data before the pixel data are subjected to the interpolation process, so that the second image is composed of a smaller number of pixels than the first image. Furthermore, the thinned pixel data displayed on the LCD display is uniformly distributed and spaced from each other because the thinned pixel data consists of the pixels continuing in the uniform pattern as depicted in Figure 3 of Miyamoto. It is viewed by the examiner that the thinned pixel data

displayed on the LCD display are spaced from each other because the thinned pixel data consists of the pixels and are in a two-dimensional matrix. The pixels are in different geometric locations. Therefore, the pixels are spaced from each other by at least one thinned out pixel data. Miyamoto teaches a thinning technique which preserves the original color filter arrangement in the subsequent thinned image. However, Miyamoto selecting the pixels according to a sub-sampling corresponding to the depiction of Figure (3) and does not teach that the thinned pixel data can be selected so that each pixel in the thinned pixel data is separated from each other by at least one pixel data.

Kondo et al teaches on Column 5, Lines 40-55 and depicts in Figure 9a that it is advantageous when thinning an image to thin the image by selecting every third column and third line of image data (Column 12, Lines 47-61. Therefore, each thinned pixel selected in the thinning process of Kondo et al is separated from each other by at least one pixel data. Kondo et al teaches in the abstract that this thinning process is advantageous because it performs the thinning process without deteriorating the coding efficiency.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to perform the thinning technique of selecting every third column and third line of image data as taught by Kondo et al in the digital camera of Miyamoto in order to perform the line thinning process without deteriorating the coding efficiency.

Miyamoto teaches on Column 3, lines 57-63 and depicts in Figure 3 wherein said colors of said original image data are arranged in such a manner

that a (m x m) matrix, formed by said plurality of colors, is repeated, and said thinning processor thins out (m x (n-1)) number of pixel data for every (m x n) number of pixel data in a horizontal direction and a vertical direction of an image corresponding to said original image data, wherein each of "m" and "n" is a positive integer greater than 1. The examiner has viewed m = 2 and n = 2, therefore there is a (2x2) matrix which contains two green pixels one red pixel and one blue pixel. And the system thins out 2 pixel data for every 4-pixel data. Miyamoto teaches on Column 5, Lines 59-63 that the ratio for image reduction is not limited to 1:2, and that by changing the number of pixels between neighboring pixel blocks, other corresponding ratios can be used. However, Miyamoto does not specifically state that the thinning processor thins out 2 pixel data for every 3 pixel data.

However, Hayashi teaches on Column 4, Lines 53-67 and depicts in Figure 1 the use of a system which collects image data from an image sensor and thins the image data using an appropriate thinning ratio so that the output image has the same resolution as the monitor (29) used for display. Hayashi further teaches that several image sensor resolutions and several monitor resolutions can be used. Hayashi teaches that it is advantageous to allow the thinning processor to use multiple thinning ratios so that several types of CCDs and monitors having different resolutions can be used in the same system and therefore making both the CCD and the monitors interchangeable.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to enable the system of Miyamoto to use a

reduction ratio in which the thinning processor thins out 2 pixel data for every 3 and 4 pixels for every 5 pixel in order to enable the system to display the image data on a display screen that had one third the resolution or one fifth the resolution of the image sensor. Therefore, enabling the system to making both the CCD and the monitors interchangeable.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3: Claims 1-9, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,593,965 Miyamoto in view of in view of USPN 5,912,708 Kondo et al in further view of USPN 5,900,623 Tsang et al in further view of USPN 5,734,427 Hayashi.

4: As for Claim 1, Miyamoto teaches an image reading device comprising: An imaging device that has pixels and color filters provided on said imaging device, said color filter having color filter elements of a plurality of colors (Figure 3), said pixels generating an original image data containing pixel data, each of which corresponds to one of said colors which are arranged in a predetermined distribution; A reading processor that reads said pixel data from said imaging device; Column 2, Lines 11-17. A thinning processor that thins out some of said pixel data to generate a thinned image data, colors of which are arranged in said

predetermined distribution; Figure 3 and Column 3, Lines 57-60 and An interpolation processor that performs an interpolation process on said thinned image data to generate an interpolated image data for each of said colors; Column 4, Lines 12-20. Furthermore, the thinned pixel data displayed on the LCD display is uniformly distributed and spaced from each other because the thinned pixel data consists of the pixels continuing in the uniform pattern as depicted in Figure 3 of Miyamoto. It is viewed by the examiner that the thinned pixel data displayed on the LCD display are spaced from each other because the thinned pixel data consists of the pixels and are in a two-dimensional matrix. The pixels are in different geometric locations. Therefore, the pixels are spaced from each other by at least one thinned out pixel data. Miyamoto teaches a thinning technique which preserves the original color filter arrangement in the subsequent thinned image. However, Miyamoto selecting the pixels according to a sub-sampling corresponding to the depiction of Figure (3) and does not teach that the thinned pixel data can be selected so that each pixel in the thinned pixel data is separated from each other by at least one pixel data.

Kondo et al teaches on Column 5, Lines 40-55 and depicts in Figure 9a that it is advantageous when thinning an image to thin the image by selecting every third column and third line of image data (Column 12, Lines 47-61. Therefore, each thinned pixel selected in the thinning process of Kondo et al is separated from each other by at least one pixel data. Kondo et al teaches in the abstract that this thinning process is advantageous because it performs the thinning process without deteriorating the coding efficiency.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to perform the thinning technique of selecting every third column and third line of image data as taught by Kondo et al in the digital camera of Miyamoto in order to perform the line thinning process without deteriorating the coding efficiency.

Miyamoto does not teach an imaging device that has photo-diodes rather states that the imaging device is a CCD image sensor.

Tsang et al depicts in Figure 4 and teaches on Columns 4 and 5, Lines 60-67 and Lines 1-4 the use of an image sensor that uses photo-diodes for generating image data. Tsang et al teaches that it is advantageous to use photo-diodes because they provide superior quantum efficiency.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the photo-diode image sensor array configuration of Tsang et al for the image sensor of Miyamoto in order to provide superior quantum efficiency.

Miyamoto teaches on Column 3, lines 57-63 and depicts in Figure 3 wherein said colors of said original image data are arranged in such a manner that a (m x m) matrix, formed by said plurality of colors, is repeated, and said thinning processor thins out (m x (n-1)) number of pixel data for every (m x n) number of pixel data in a horizontal direction and a vertical direction of an image corresponding to said original image data, wherein each of "m" and "n" is a positive integer greater than 1. The examiner has viewed m = 2 and n = 2, therefore there is a (2x2) matrix which contains two green pixels one red pixel

and one blue pixel. And the system thins out 2 pixel data for every 4-pixel data. Miyamoto teaches on Column 5, Lines 59-63 that the ratio for image reduction is not limited to 1:2, and that by changing the number of pixels between neighboring pixel blocks, other corresponding ratios can be used. However, Miyamoto does not specifically state that the thinning processor thins out 2 pixel data for every 3 pixel data.

However, Hayashi teaches on Column 4, Lines 53-67 and depicts in Figure 1 the use of a system which collects image data from an image sensor and thins the image data using an appropriate thinning ratio so that the output image has the same resolution as the monitor (29) used for display. Hayashi further teaches that several image sensor resolutions and several monitor resolutions can be used. Hayashi teaches that it is advantageous to allow the thinning processor to use multiple thinning ratios so that several types of CCDs and monitors having different resolutions can be used in the same system and therefore making both the CCD and the monitors interchangeable.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to enable the system of Miyamoto to use a reduction ratio in which the thinning processor thins out 2 pixel data for every 3 and 4 pixels for every 5 pixel in order to enable the system to display the image data on a display screen that had one third the resolution or one fifth the resolution of the image sensor. Therefore, enabling the system to making both the CCD and the monitors interchangeable.

5: As for Claim 3, Miyamoto teaches on Column 3, lines 57-63 and depicts in Figure 3 wherein the colors of the original image data are arranged in such a manner that a (2x2) matrix, formed by said plurality of colors, is repeated, and said thinning processor thins out (2 x (n-1)) = 2 number of pixel data for every (2 x n) = 4 number of pixel data in a horizontal direction and a vertical direction of an image corresponding to the original image data. The examiner has viewed n = 2, therefore there is a (2x2) matrix which contains two green pixels one red pixel and one blue pixel. And the system thins out 2 pixel data for every 4 pixel data.

6: In regards to Claim 4, Miyamoto teaches on Column 5, Lines 59-63 that the ratio for image reduction is not limited to 1:2, and that by changing the number of pixels between neighboring pixel blocks, other corresponding ratios can be used. Miyamoto teaches on Column 3, lines 57-63 and depicts in Figure 3 wherein said colors of said original image data are arranged in such a manner that a (m x m) matrix, formed by said plurality of colors, is repeated, and said thinning processor thins out (m x (n-1)) number of pixel data for every (m x n) number of pixel data in a horizontal direction and a vertical direction of an image corresponding to said original image data, wherein each of "m" and "n" is a positive integer greater than 1. The examiner has viewed m = 2 and n = 2, therefore there is a (2x2) matrix which contains two green pixels one red pixel and one blue pixel. And the system thins out 2 pixel data for every 4-pixel data. Miyamoto teaches on Column 5, Lines 59-63 that the ratio for image reduction is not limited to 1:2, and that by changing the number of pixels between neighboring pixel blocks, other corresponding ratios can be used. However,

Miyamoto does not specifically state that the thinning processor thins out 2 pixel data for every 3 pixel data.

However, Hayashi teaches on Column 4, Lines 53-67 and depicts in Figure 1 the use of a system which collects image data from an image sensor and thins the image data using an appropriate thinning ratio so that the output image has the same resolution as the monitor (29) used for display. Hayashi further teaches that several image sensor resolutions and several monitor resolutions can be used. Hayashi teaches that it is advantageous to allow the thinning processor to use multiple thinning ratios so that several types of CCDs and monitors having different resolutions can be used in the same system and therefore making both the CCD and the monitors interchangeable.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to enable the system of Miyamoto to use a reduction ratio in which the thinning processor thins out 2 pixel data for every 3 and 4 pixels for every 5 pixel in order to enable the system to display the image data on a display screen that had one third the resolution or one fifth the resolution of the image sensor. Therefore, enabling the system to making both the CCD and the monitors interchangeable.

7: As for Claim 5, Miyamoto teaches on Column 5, Lines 59-63 that the ratio for image reduction is not limited to 1:2, and that by changing the number of pixels between neighboring pixel blocks, other corresponding ratios can be used. Miyamoto teaches on Column 3, lines 57-63 and depicts in Figure 3 wherein said colors of said original image data are arranged in such a manner that a (m x m)

matrix, formed by said plurality of colors, is repeated, and said thinning processor thins out (m x (n-1)) number of pixel data for every (m x n) number of pixel data in a horizontal direction and a vertical direction of an image corresponding to said original image data, wherein each of "m" and "n" is a positive integer greater than 1. The examiner has viewed m = 2 and n = 2, therefore there is a (2x2) matrix which contains two green pixels one red pixel and one blue pixel. And the system thins out 2 pixel data for every 4-pixel data. Miyamoto teaches on Column 5, Lines 59-63 that the ratio for image reduction is not limited to 1:2, and that by changing the number of pixels between neighboring pixel blocks, other corresponding ratios can be used. However, Miyamoto does not specifically state that the thinning processor thins out 2 pixel data for every 3 pixel data.

However, Hayashi teaches on Column 4, Lines 53-67 and depicts in Figure 1 the use of a system which collects image data from an image sensor and thins the image data using an appropriate thinning ratio so that the output image has the same resolution as the monitor (29) used for display. Hayashi further teaches that several image sensor resolutions and several monitor resolutions can be used. Hayashi teaches that it is advantageous to allow the thinning processor to use multiple thinning ratios so that several types of CCDs and monitors having different resolutions can be used in the same system and therefore making both the CCD and the monitors interchangeable.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to enable the system of Miyamoto to use a reduction ratio in which the thinning processor thins out 2 pixel data for every 3

and 4 pixels for every 5 pixel in order to enable the system to display the image data on a display screen that had one third the resolution or one fifth the resolution of the image sensor. Therefore, enabling the system to making both the CCD and the monitors interchangeable.9: In regards to Claim 6, Miyamoto depicts in Figure 3 that the colors of the color filter elements are arranged in the Bayer arrangement.

8: As for Claim 7, Miyamoto depicts in Figure 3 that the color filter has red filter elements, green filter elements and blue filter elements, and in the (2 x 2) matrix, the green filter elements are positioned on a diagonal line, and the red filter element and the blue filter element are positioned on another diagonal line.

9: In regards to Claim 8, Miyamoto teaches on Column 5, Lines 59-63 that the ratio for image reduction is not limited to 1:2, and that by changing the number of pixels between neighboring pixel blocks, other corresponding ratios can be used. Therefore, the reduction ratio is set in accordance with which the number of pixel data thinned out by the thinned processor.

10: As for Claim 9, Miyamoto teaches on Column 5, Lines 64-67 a reduced image indicating processor that forms a color image based on the interpolated image data and indicates the color image. Miyamoto teaches that the reduced or thinned image is interpolated and sent to the video memory and is then displayed on an LCD. This is viewed by the examiner as forming a color image based on the interpolated image data and indicates the color image.

11: In regards to Claim 11, Miyamoto depicts in Figure 3 that the colors of the color filter elements are arranged in the Bayer arrangement.

12: As for Claim 12, Miyamoto depicts in Figure 3 that the color filter has red filter elements, green filter elements and blue filter elements, and in the (2 x 2) matrix, the green filter elements are positioned on a diagonal line, and the red filter element and the blue filter element are positioned on another diagonal line.

13: Claims 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,593,965 Miyamoto in view of in view of USPN 5,912,708 Kondo et al in further view of USPN 5,734,427 Hayashi.

14: As for Claim 13, Miyamoto teaches an image reading device comprising: An imaging device that has pixels and color filters provided on said imaging device, said color filter having color filter elements of a plurality of colors (Figure 3), said pixels generating an original image data containing pixel data, each of which corresponds to one of said colors which are arranged in a predetermined distribution; Miyamoto depicts in Figure 3 that the color filter has red filter elements, green filter elements and blue filter elements, and in the (2 x 2) matrix. A thinning processor that thins out some of said pixel data to generate a thinned image data, colors of which are arranged in said predetermined distribution; Figure 3 and Column 3, Lines 57-60 and An interpolation processor that performs an interpolation process on said thinned image data to generate an interpolated image data for each of said colors; Column 4, Lines 12-20. Furthermore, the thinned pixel data displayed on the LCD display is uniformly distributed and spaced from each other because the thinned pixel data consists of the pixels continuing in the uniform pattern as depicted in Figure 3 of Miyamoto. It is viewed by the examiner that the thinned pixel data displayed on the LCD display are

spaced from each other because the thinned pixel data consists of the pixels and are in a two-dimensional matrix. The pixels are in different geometric locations. Therefore, the pixels are spaced from each other by at least one thinned out pixel data. Miyamoto teaches a thinning technique which preserves the original color filter arrangement in the subsequent thinned image. However, Miyamoto selecting the pixels according to a sub-sampling corresponding to the depiction of Figure (3) and does not teach that the thinned pixel data can be selected so that each pixel in the thinned pixel data is separated from each other by at least one pixel data.

Kondo et al teaches on Column 5, Lines 40-55 and depicts in Figure 9a that it is advantageous when thinning an image to thin the image by selecting every third column and third line of image data (Column 12, Lines 47-61. Therefore, each thinned pixel selected in the thinning process of Kondo et al is separated from each other by at least one pixel data. Kondo et al teaches in the abstract that this thinning process is advantageous because it performs the thinning process without deteriorating the coding efficiency.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to perform the thinning technique of selecting every third column and third line of image data as taught by Kondo et al in the digital camera of Miyamoto in order to perform the line thinning process without deteriorating the coding efficiency.

Miyamoto teaches on Column 3, lines 57-63 and depicts in Figure 3 wherein said colors of said original image data are arranged in such a manner

that a (m x m) matrix, formed by said plurality of colors, is repeated, and said thinning processor thins out (m x (n-1)) number of pixel data for every (m x n) number of pixel data in a horizontal direction and a vertical direction of an image corresponding to said original image data, wherein each of "m" and "n" is a positive integer greater than 1. The examiner has viewed m = 2 and n = 2, therefore there is a (2x2) matrix which contains two green pixels one red pixel and one blue pixel. And the system thins out 2 pixel data for every 4-pixel data. Miyamoto teaches on Column 5, Lines 59-63 that the ratio for image reduction is not limited to 1:2, and that by changing the number of pixels between neighboring pixel blocks, other corresponding ratios can be used. However, Miyamoto does not specifically state that the thinning processor thins out 2 pixel data for every 3 pixel data.

However, Hayashi teaches on Column 4, Lines 53-67 and depicts in Figure 1 the use of a system which collects image data from an image sensor and thins the image data using an appropriate thinning ratio so that the output image has the same resolution as the monitor (29) used for display. Hayashi further teaches that several image sensor resolutions and several monitor resolutions can be used. Hayashi teaches that it is advantageous to allow the thinning processor to use multiple thinning ratios so that several types of CCDs and monitors having different resolutions can be used in the same system and therefore making both the CCD and the monitors interchangeable.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to enable the system of Miyamoto to use a

reduction ratio in which the thinning processor thins out 2 pixel data for every 3 and 4 pixels for every 5 pixel in order to enable the system to display the image data on a display screen that had one third the resolution or one fifth the resolution of the image sensor. Therefore, enabling the system to making both the CCD and the monitors interchangeable.

15: In regards to Claim 14, Miyamoto depicts in Figure 3 that the colors of the color filter elements are arranged in the Bayer arrangement.

16: As for Claim 15, Miyamoto depicts in Figure 3 that the color filter has red filter elements, green filter elements and blue filter elements.

17: In regards to Claim 16, Miyamoto depicts in Figure 3 that the color filter has red filter elements, green filter elements and blue filter elements, and in the (2 x 2) matrix, the green filter elements are positioned on a diagonal line, and the red filter element and the blue filter element are positioned on another diagonal line.

18: As for Claim 17, Miyamoto teaches a thinning processor (reduced image indicating processor) (Figure 3 and Column 3, Lines 57-60) that thins out some of the pixel data before the pixel data are subjected to the interpolation process, so that the second image (formed color image based on the interpolated image) is composed of a smaller number of pixels than the first image. Furthermore, the thinned pixel data displayed on the LCD display is uniformly distributed and spaced from each other because the thinned pixel data consists of the color pixels continuing in the uniform pattern as depicted in Figure 3 of Miyamoto.

19: In regards to Claim 18, Miyamoto teaches an image reading device in an on-chip color filter of a plurality of colors, are point-sequentially read from the imaging device (Column 2, Lines 11-17).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Hannett whose telephone number is 571-272-7309. The examiner can normally be reached on 8:00 am to 5:00 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivek Srivastava can be reached on 571-272-7304. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James M. Hannett
Examiner
Art Unit 2612

JMH
July 6, 2006

VIVEK SRIVASTAVA
PRIMARY EXAMINER